

# Chapter 5 System Diagnostics and Troubleshooting

This chapter discusses the tools available for diagnosing and troubleshooting system issues.

- “E-Support” on page 104
- “Troubleshooting Checklist” on page 104
- “LED Color Definitions” on page 105
- “HP Insight Diagnostics Offline Edition” on page 105
- “Diagnostic Error Codes” on page 111
- “Troubleshooting Scenarios and Solutions” on page 112
- “Power On Self Test (POST) and Error Messages” on page 133

# E-Support

## Help & Support Center (HSC) and E-Support

HSC provides online access to technical support information, software updates and downloads, diagnostic tools, and HP support contact information.

To open HSC from your desktop, click **Start>Help and Support**.

HSC contains four sections:

- HP Product Information (requires Internet access)—Links to the HP Technical Support Website for your product. You can access all related documentation, downloads and updates, tools, and more.
- HP Software & Driver Downloads (requires Internet access)—Links to HP-specific software downloads and updates.
- HP Support Tools (requires Internet access)—Links to self-help tools and diagnostics offered by HP Instant Support Professional Edition.
- Contact HP for Support (option available that does not require Internet access)—Provides two different options:
  - Chat with an expert online (requires Internet access)—Provides a tool to communicate with a support specialist online through **Active Chat**.
  - Call a support agent—Provides hardware details about the workstation and HP support contact phone number worldwide.

## Troubleshooting Checklist

Before running any of the diagnostic utilities, go through the following checklist to find possible solutions for workstation or software problems.

- Are the workstation and monitor connected to a working electrical outlet?
- Is the workstation turned on?
- Is the green power light illuminated?
- Is the monitor turned on?
- Is the green monitor light illuminated?
- Turn up the monitor brightness and contrast controls if the monitor is dim.
- Press and hold any key. If the system beeps, then the keyboard is operating correctly.
- Check all cables for loose or incorrect connections.
- Reconfigure the workstation after installing a non-PnP expansion board or other option, such as a diskette drive.
- Are all of the necessary device drivers installed?
- Have all printer drivers been installed for each application?
- Remove all diskettes and CDs from the drives before you turn on the system.
- Are you running the latest BIOS version, drivers, and/or software updates?

# LED Color Definitions

An LED light exists on the front panel of your workstation. The following table describes what each color signifies.

**Table 5-1** LED color definitions

LED State	LED Color	System Status
Solid	Green	System is on.
Blinking	Green	System is in Standby.
Solid or Blinking	Red	System has error. Refer to <a href="#">“Diagnostic Light Codes” on page 111</a>
None	No light	System is in Hibernate or it is off.

## HP Insight Diagnostics Offline Edition

The diagnostics utility enables you to perform testing and to view critical computer hardware and software configuration information from various sources. This utility allows you to:

- Run diagnostics.
- View the hardware configuration of the system.

### Key Features and Benefits

HP Insight Diagnostics simplifies the process of effectively identifying, diagnosing, and isolating the hardware issues.

In addition to robust management tools, service tools can be invaluable in quickly resolving system problems. To streamline the service process and resolve problems quickly, it is necessary to have the right information available at the time that a service call is placed. The primary information requirement, which is also the one that provides the greatest insight into potential system issues, is the configuration of the system. Insight Diagnostics helps provide higher system availability. Typical uses of the Insight Diagnostics are:

- Testing and diagnosing apparent hardware failures
- Documenting system configurations for upgrade planning, standardization, inventory tracking, disaster recovery, and maintenance
- Sending configuration information to another location for more in-depth analysis

### Theory of Operation

Insight Diagnostics Offline Edition operates in offline mode only. The operating system is not running and software information from the system is not available to the diagnostics.

Offline Survey is available to display the current system configuration.

The Insight Diagnostics Test feature provides the capability to test functionality of all the major hardware components in the system. The Test feature is designed to be flexible to enable the user to customize test selections by providing different modes and types of testing.

A Quick Test provides a predetermined script where a sample of each hardware component is exercised and requires no user intervention.

A Complete Test provides a predetermined script where each hardware component is fully tested. You can select Interactive or Unattended tests. This will change the devices tested during the Complete Test. There are more tests available in the interactive mode, but these require user intervention.

A Custom Test provides the most flexibility in controlling the testing of a system. The Custom Test mode enables the user to specifically select which devices, tests, and test parameters are run. Users are provided the ability to select tests that do not require any user interaction through the Interactive and Unattended tests modes.

## Diagnostic Utility on CD

HP Insight Diagnostics is available on the *Documentation Library* CD that was shipped with your workstation.

To start the diagnostic utility on the *Documentation Library* CD:

- 1 Turn on your workstation and press the **F10** key during the initial boot process to enter the Computer Setup (F10) Utility ([page 35](#)).
- 2 Select your language from the list and press the **Enter** key. In the Computer Setup Utilities menu, four headings are displayed: File, Storage, Security, and Advanced.
- 3 Use the right arrow key to select **Storage**. Use the down arrow key to select **Boot Order**, then press **Enter**.
- 4 Select **CD-ROM Drive** and enable it as a bootable device by pressing the **F5** key (if not already enabled, pressing the F5 key again disables the device).
- 5 Set the **CD-ROM Drive** to the top of the boot order. To do this, select **CD-ROM**, press the **Enter** key, and use the up arrow to move it to the top of the boot order.
- 6 To apply and save changes, press the **F10** key, and select **File>Save Changes and Exit**.
- 7 Insert the *Documentation Library* CD into the workstation.
- 8 Restart your system and HP Insight Diagnostics launches automatically.

## Download the ISO Image

To download the latest diagnostic utility:

- 1 Visit <http://www.hp.com>.
- 2 Click the **Support & Drivers** link.
- 3 Click the **Download driver and software** radio button.
- 4 Enter your product number (for example, xw8200) in the text box and press the **Enter** key.
- 5 Select your OS.
- 6 Click the **Diagnostic** link.
- 7 Locate **HP Insight Diagnostics** and click **Download**.

# User Interface

## NAVIGATION

The Insight Diagnostics home page contains the following tabs: **Survey**, **Test**, **Status**, **Log**, and **Help**. These tabs separate the major functions of Insight Diagnostics.

## SURVEY TAB

When the Survey tab is selected, the **Survey** menu displays and enables you to view important system configuration information. The **Summary** view limits the amount of data displayed, while the **Advanced** view shows all the data in the selected category. Regardless of whether you choose **Advanced** or **Summary**, the following categories of information are available on the **Survey** menu:

**Overview**—The Overview view gives you a listing of general information about the computer.

**All**—The All view gives a listing of all information about the computer.

**Architecture**—The Architecture view shows the type of bus the computer uses. In addition, if the bus is PCI, information about the PCI configuration is displayed.

**Asset Control**—The Asset Control view shows the serial number of the computer (system identification number).

**Communication**—The Communication view shows information about the computer parallel (LPT) and serial (COM) port settings, USB, and network controller information.

**Graphics**—The Graphics view shows information about the graphics subsystem of the computer. This includes information about the graphics card, mode, and ROM.

**Input Devices**—The Input Devices view shows information about the type of keyboard, mouse, and other input devices connected to the computer.

**Internal Conditions**—The Internal Conditions view shows information about the health of the computer. This includes fan, temperature, and power-supply information.

**Memory**—The Memory view shows information about all memory in the computer. This includes memory on the board and any memory modules installed.

**Miscellaneous**—The Miscellaneous view shows information obtained from the computers configuration memory (CMOS), BIOS data area, Interrupt Vector table, and diagnostics component information.

**Multimedia**—The Multimedia view shows information about all multimedia devices in the computer. This includes audio devices installed.

**Resources**—The Resources view shows the system device resource usage information. This includes information about I/O, memory, IRQ, slot, and bus usage.

**Storage**—The Storage view shows information about storage media connected to the computer. This list includes all fixed disks, floppy drives, and CD-ROM drives.

**System**—The System view shows product type, processor type and speed, and coprocessor information. Also shown in this display is information about all ROMs in the computer.

## TEST TAB

The Insight Diagnostics utility provides the capability to test all the major pieces of hardware in the system. You can select from several types of tests:

**Quick Test**—Provides a predetermined script where a sample of each hardware component is exercised and requires no user intervention.

**Complete Test**—Provides a predetermined script where each hardware component is fully tested. You can select **Interactive** or **Unattended** tests. This will change the devices tested during the Complete Test. There are more tests available in the interactive mode, but these require user intervention.

**Custom Test**—Provides the most flexibility in controlling the testing of a system. The Custom Test mode allows the user to specifically select which devices, tests, and test parameters are run. Users are provided the ability to select tests that do not require any user interaction through the **Interactive** and **Unattended** test modes.

To begin testing:

- 1 Select the **Test** tab.
- 2 Select the **Type of Test** to perform and then select the **Test Mode**, either **Interactive** or **Unattended**.
- 3 Choose how you want the test to be executed, either **Number of Loops** or **Total Test Time**.

When choosing to run the test over a specified number of loops, enter the number of loops to perform. If you desire to have the diagnostic test for a specified time period, enter the amount of time in minutes.



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**NOTE** Testing will automatically stop, if one test loop has been completed, when the elapsed test time has reached the specified time limit.

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- 4 Click **Begin Testing** to start the test.

While tests are being performed, the user can monitor the progress by viewing the Status tab. Any errors that are detected are summarized in the Error Log. Select the Print button to print or save the report.

If the diagnostics utility detects an error during a test, the user can mouse-over the failed text in the Status tab to display additional information for the type of error and the error code.

To view all test failure information, select the Error Log. To view the status of all testing that has been performed, select the Log tab.

## STATUS TAB

The Status tab displays the status of the selected tests. The type of test executed (for example, **Quick**, **Complete**, **Custom**) is displayed. The main progress bar displays the percent complete of the current set of tests. While testing is in progress a **Cancel** testing button, which will cancel the test job, is displayed.

After testing has completed the **Cancel** testing button is replaced with two buttons, **Select New Tests** and **Retest**. The **Select New Tests** button allows you to go back to the previous test selection page to select a new set of tests. The **Retest** button will retest the last set of tests executed. This enables you to re-run the set of tests without having to go back to the test selection page.

The Status page also shows:

- The devices being tested.
- The tests that are running.
- The overall elapsed time.
- The individual elapsed test times.
- The condition status of each test.

## LOG TAB

The Log tab consists of three views.

**Test Log**—Displays all tests that have been executed, number of times of execution, number of times the test failed, and the time it took to complete the test. The Clear Test Log button will clear the contents of the Test Log.

**Error Log**—Displays the tests that have failed during the diagnostic testing. Besides displaying the device and test this section might also include error details. The description section describes the error that the diagnostic test found. The Recommended Repair will give a recommended action that should be performed to resolve the failed hardware. The error count is the number of times the test has failed. The Clear Error Log button will clear the contents of the Error Log.

## TEST COMPONENTS

Hardware and software tests can be performed on the following components:

- **Audio**—Identifies all audio devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
- **CPU**—Identifies all processors installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
- **Inspect**—Captures general system configuration information.
- **Keyboard**—Identifies the keyboard installed in a system and provides the ability to verify proper operation of this device.
- **Memory**—Identifies all memory modules installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these modules.
- **Modem**—Identifies all modem devices installed in a system, captures any associated configuration information, and provides the ability to verify the proper operation of these devices.
- **Mouse**—Identifies the mouse installed in a system and provides the ability to verify proper operation of this device.
- **Network**—Identifies all network devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices. NIC testing is only performed if drivers are installed during discovery.
- **Parallel Port**—Identifies all parallel devices installed in a system and captures any associated configuration information. If the parallel port is properly configured and the information is available to the operating system, the associated DMA, IRQ, and I/O ports are reported. This test component also provides the ability to verify proper operation of these devices.
- **PCI Bus**—Identifies all PCI devices installed in a system and provides the ability to verify proper PCI I/O operation to the devices.
- **Serial Port**—Identifies all serial devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
- **Storage**—Identifies storage devices connected to a system through IDE, USB, SCSI, or a Fibre Channel network. Supported devices include:
  - IDE hard disk drives
  - USB disk drives
  - SATA disk drives

- SCSI disk drives
- SCSI tape drives
- SCSI controllers
- RAID controllers

Controllers can be connected to the host through PCI, I2C, or serial port. The component also captures any associated configuration information, and provides the ability to verify proper operation of these devices.

- **Stress**—Provides a solution for stress testing hardware in a system.
- **USB**—Identifies all USB devices installed in a system, captures any associated configuration information, and provides the ability to verify proper operation of these devices.
- **Graphics**—Identifies all graphic devices installed in a system, captures any associated configuration information, such as the ASIC and monitor types, and provides the ability to verify proper operation of these devices.

A list of available tests for each test component and a list of error codes can be accessed through the Test Component and Error Codes menu selections on the Help tab menu bar.



# Diagnostic Error Codes

This sections provides an overview of the diagnostic lights and error codes that are related to your workstation.

## Diagnostic Light Codes

**Table 5-2** Chassis Indicator Lights

Power LED and Sound Activity	Diagnosis and Service Action
None	<p>System does not power on Press power button. If HDD LED = GREEN, then:</p> <ol style="list-style-type: none"> <li>1 Remove the expansion cards one-at-a-time.</li> <li>2 Replace the system board.</li> </ol> <p>OR</p> <p>Press power button. If HDD LED does not illuminate, then:</p> <ol style="list-style-type: none"> <li>1 Check that the unit is plugged into a working AC outlet.</li> <li>2 Open access panel and check that the power button harness is properly connected to the in-line front panel I/O device assembly connector.</li> <li>3 Check that the power supply cables are properly connected to the system board.</li> <li>4 Check the power supply functionality.               <ol style="list-style-type: none"> <li>a Disconnect AC power.</li> <li>b Remove all internal power supply cables from the system board.</li> <li>c Plug in AC power.                   <ul style="list-style-type: none"> <li>● If the power supply fan spins and the BIST LED lights, then the power supply is good. Replace the system board.</li> <li>● If the power supply fan does not spin or the BIST LED does not light, replace the power supply.</li> </ul> </li> </ol> </li> </ol>
Solid GREEN Power LED.	Workstation is on. No action required.
GREEN Power LED flashes 1 time each 2 seconds.	Workstation in Standby mode. No action required.
None	Workstation in Suspend to Disk or Hibernate mode. No action required.
Solid RED LED.	<p>CPU not installed:</p> <ol style="list-style-type: none"> <li>1 Install CPU.</li> <li>2 Reseat CPU.</li> </ol>
Blinks RED 2 times, once per second, then 2-second pause.	<p>Thermal Shutdown:</p> <ol style="list-style-type: none"> <li>1 Be sure the workstation air vents are not blocked and cooling fan is running.</li> <li>2 Open hood, press power button, and see if processor fan spins. If not spinning, be sure fan cable is plugged into the system board and be sure fan is fully/properly seated.</li> <li>3 If fan is plugged in and seated but not spinning, then replace processor fan.</li> <li>4 Reseat CPU heatsink and verify fan assembly properly attached.</li> </ol>

**Table 5-2** Chassis Indicator Lights (Continued)

Power LED and Sound Activity	Diagnosis and Service Action
Blinks RED 1 time each 2 seconds.	<p>Power supply failure:</p> <ol style="list-style-type: none"> <li>1 Open the access panel and be sure the four-wire power supply cable is properly connected to the system board.</li> <li>2 Locate faulty device by removing all devices and then reinstalling one at a time until workstation fails. Replace the device causing the failure. Continue adding devices to ensure all are functioning properly.</li> <li>3 Check the power supply functionality. <ol style="list-style-type: none"> <li>a Disconnect AC power.</li> <li>b Remove all internal power supply cables from the system board.</li> <li>c Plug in AC power. <ul style="list-style-type: none"> <li>● If the power supply fan spins and the BIST LED lights, then the power supply is good. Replace the system board.</li> <li>● If the power supply fan does not spin or the BIST LED does not light, replace the power supply.</li> </ul> </li> </ol> </li> </ol>
Blinks RED 5 times, once per second, then 2-second pause. 5 Beeps.	<ol style="list-style-type: none"> <li>1 Reseat memory modules.</li> <li>2 Replace memory modules one at a time to find the faulty module.</li> <li>3 Replace third-party modules with HP memory.</li> <li>4 Replace system board.</li> </ol>
Blinks RED 6 times, once per second, then 2-second pause. 6 Beeps.	For system with integrated graphics, replace system board.
Blinks RED 7 times, once per second, then 2-second pause. 7 Beeps.	System board failure (ROM detected failure before video). Replace system board.
Blinks RED 8 times, once per second, then 2-second pause. 8 Beeps.	<p>Invalid ROM based on bad checksum.</p> <ol style="list-style-type: none"> <li>1 Reflash ROM.</li> <li>2 Replace system board.</li> </ol>

## Troubleshooting Scenarios and Solutions

This section presents an extensive overview of various troubleshooting scenarios and includes possible solutions for each.

### Solving Minor Problems

**Table 5-3** Minor Problems

Problem	Cause	Possible Solution
Workstation appears locked up and will not turn off when the power button is pressed.	Software control of the power switch is not functional.	<ol style="list-style-type: none"> <li>1 Press and hold the power button for at least four seconds until the workstation turns off.</li> <li>2 Disconnect electrical plug from outlet.</li> </ol>

**Table 5-3** Minor Problems (Continued)

Problem	Cause	Possible Solution
Workstation seems to be locked up.	Program in use has stopped responding to commands.	<ol style="list-style-type: none"> <li>1 Attempt the normal Windows “Shut Down” procedure.</li> <li>2 Press the power button for four or more seconds to turn off the power.</li> <li>3 Restart the workstation using the power button.</li> </ol>
Workstation date and time display is incorrect.	Real-time clock (RTC) battery might need to be replaced.	<ol style="list-style-type: none"> <li>1 Reset the date and time under Control Panel.</li> <li>2 Replace the RTC battery.</li> </ol>
Workstation appears to pause periodically.	Network driver is loaded and no network connection is established.	Establish a network connection, or use Computer Setup or Microsoft Windows Device Manager to disable the network controller.
Cursor will not move using the arrow keys on the keypad.	The <b>Num Lock</b> key might be on.	Press the <b>Num Lock</b> key. The <b>Num Lock</b> key can be disabled (or enabled) in Computer Setup.
Poor performance is experienced.	Processor is hot.	<ol style="list-style-type: none"> <li>1 Be sure airflow to the workstation is not blocked.</li> <li>2 Be sure the fans are connected and working properly (some fans only operate when needed).</li> <li>3 Be sure the CPU heatsink is installed properly.</li> </ol>
	Hard drive is full.	Transfer data from the hard drive to create more space on the hard drive.
Workstation powered off automatically and the Power LED flashes Red two times, once every second, followed by a two-second pause, and two simultaneous beeps are heard.	Processor thermal protection activated: A fan might be blocked or not turning. OR The CPU heatsink is not properly attached to the processor.	<ol style="list-style-type: none"> <li>1 Be sure workstation air vents are not blocked and the cooling fan is running.</li> <li>2 Open hood, press power button, and see if the processor fan spins. If not spinning, be sure the fan’s cable is plugged onto the system board header. Be sure the fan is fully/properly seated or installed.</li> <li>3 Replace the processor fan.</li> <li>4 Reseat CPU heatsink and verify that the fan assembly is properly attached.</li> </ol>

**Table 5-3** Minor Problems (Continued)

Problem	Cause	Possible Solution
System does not power on and the LEDs on the front of the workstation are not flashing.	System unable to power on.	<p>Press and hold the power button for less than four seconds. If the hard drive LED turns green, then:</p> <ol style="list-style-type: none"> <li>1 Remove the expansion cards.</li> <li>2 Replace the system board.</li> </ol> <p>OR</p> <p>Press and hold the power button for less than four seconds. If HDD LED does not illuminate, then:</p> <ol style="list-style-type: none"> <li>1 Check that the unit is plugged into a working AC outlet.</li> <li>2 Open access panel and check that the power button harness is properly connected to the in-line front panel I/O device assembly connector.</li> <li>3 Check that the power supply cables are properly connected to the system board.</li> <li>4 Check the power supply functionality. <ol style="list-style-type: none"> <li>a Disconnect AC power.</li> <li>b Remove all internal power supply cables from the system board.</li> <li>c Plug in AC power. <ul style="list-style-type: none"> <li>● If the power supply fan spins and the BIST LED lights, then the power supply is good. Replace the system board.</li> <li>● If the power supply fan does not spin or the BIST LED does not light, replace the power supply.</li> </ul> </li> </ol> </li> </ol>

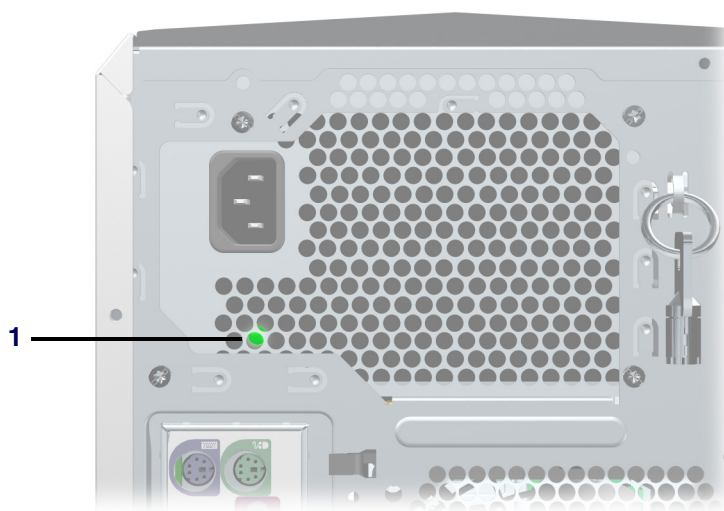
# Solving Power Supply Problems

## Testing Power Supply

Before replacing the power supply, use the Built-In Self-Test (BIST) feature to learn if the power supply still works.

To test the power supply:

- 1 Disconnect all internal power supply cables.
- 2 Plug in AC power.
  - a If the green BIST LED 1 on the rear of the workstation is lit AND the fan is spinning, the power supply is functional.
  - b If the green BIST LED is not lit OR the fan is not spinning, replace the power supply.



**Table 5-4** Power Supply Problems

Problem	Cause	Solution
Power supply shuts down intermittently.	Power supply fault.	Replace the power supply.
Workstation powered off automatically and the Power LED flashes Red two times, once every second, followed by a two-second pause.	Processor thermal protection activated: A fan might be blocked or not turning. OR The CPU heatsink fan assembly is not properly attached to the processor.	<ol style="list-style-type: none"> <li>1 Be sure that the workstation air vents are not blocked and the cooling fan is running.</li> <li>2 Open the access panel, press the power button, and see if the processor fan spins. If the processor fan is not spinning, be sure the fan's cable is plugged onto the system board header. Be sure the fan is fully/ properly seated or installed.</li> <li>3 Replace the processor fan.</li> <li>4 Reseat CPU heatsink and verify that the fan assembly is properly attached.</li> </ol>

**Table 5-4** Power Supply Problems (Continued)

Problem	Cause	Solution
Power LED flashes Red, once every two seconds.	Power failure (power supply is overloaded).	<ol style="list-style-type: none"><li><b>1</b> Check if a device is causing the problem by removing ALL attached devices). Power on the system. If the system enters the POST, then power off and replace one device at a time and repeat this procedure until failure occurs. Replace the device causing the failure. Continue adding devices one at a time to ensure all devices are functioning properly.</li><li><b>2</b> Check the power supply functionality.<ol style="list-style-type: none"><li><b>a</b> Disconnect AC power.</li><li><b>b</b> Remove all internal power supply cables from the system board.</li><li><b>c</b> Plug in AC power.<ul style="list-style-type: none"><li>● If the power supply fan spins and the BIST LED lights, then the power supply is good. Replace the system board.</li><li>● If the power supply fan does not spin or the BIST LED does not light, replace the power supply.</li></ul></li></ol></li></ol>

# Solving Diskette Problems

**Table 5-5** Diskette Problems

Problem	Cause	Solution
Diskette drive light stays on.	Diskette is damaged.	In Microsoft Windows 2000 and Microsoft Windows XP, right-click Start, click Explore, and select a drive. Select File>Properties>Tools. Under Error-checking, click Check Now.
	Diskette is incorrectly inserted.	Remove diskette and reinsert.
	Files on diskette are damaged.	Check the program diskettes.
Drive not found.	Drive cable is not properly connected.	Reconnect power cable. Be sure that all four pins are connected.
	Cable is loose.	Reseat diskette drive data and power cables.
	Removable drive is not seated properly.	Reseat the drive.
Diskette drive cannot write to a diskette.	Diskette is not formatted.	Format the diskette.
	Diskette is write-protected.	Use another diskette or remove the write protection.
	Writing to the wrong drive.	Check the drive letter in the path statement.
	Not enough space is left on the diskette.	Use another diskette.
	Diskette write control is enabled.	Use Computer Setup to check the storage security feature disabled settings.
	Diskette is damaged.	Replace the damaged disk.

**Table 5-5** Diskette Problems (Continued)

Problem	Cause	Solution
Cannot format diskette.	Invalid media reported.	When formatting a disk in MS-DOS, you might need to specify diskette capacity. For example, to format a 1.44-MB diskette, enter the following command at the MS-DOS prompt: FORMAT A: /F:1440
A problem has occurred with a disk transaction.	The directory structure is bad, or there is a problem with a file.	In Windows 2000 and Windows XP, right-click Start, click Explore, and select a drive. Select File>Properties>Tools. Under Error-checking, click Check Now.
Diskette drive cannot read a diskette.	Diskette is not formatted.	Format the diskette.
	You are using the wrong diskette type for the drive type.	Check the type of drive that you are using and use the correct diskette type.
	You are reading the wrong drive.	Check the drive letter in the path statement.
	Diskette is damaged.	Replace the diskette with a new one.
“Invalid system disk” message is displayed.	A diskette that does not contain the system files needed to start the workstation has been inserted in the drive.	When drive activity stops, remove the diskette and press the <b>Spacebar</b> . The workstation should start up.
	Diskette error has occurred.	Restart the workstation by pressing the power button.
Cannot Boot to Diskette.	Diskette is not bootable.	Replace with a bootable diskette.
	Diskette boot has been disabled in Computer Setup.	Run Computer Setup and enable diskette boot in Storage>Boot Order.
	Removable media boot has been disabled in Computer Setup.	Run Computer Setup and enable Removable Media Boot in Storage>Storage Options.
	Diskette MBR validation is enabled.	Run Computer Setup and disable Diskette MBR Validation in Storage>Storage Options.

## Solving Hard Drive Problems

**Table 5-6** Hard Drive Problems

Problem	Cause	Solution
Hard drive error occurs.	Hard disk has bad sectors or has failed.	Use a utility to locate and block usage of bad sectors. If necessary, reformat the hard disk.
Disk transaction problem.	Either the directory structure is bad or there is a problem with a file.	In Windows 2000 and Windows XP, right-click Start, click Explore, and select a drive. Select File>Properties>Tools. Under Error-checking, click Check Now.
Drive not found (identified).	Loose cable.	Check cable connections.



**Table 5-6** Hard Drive Problems (Continued)

Problem	Cause	Solution
	The system might not have automatically recognized a newly installed device.	<ol style="list-style-type: none"> <li>1 Run Computer Setup.</li> <li>2 If the system still does not recognize the new device, check to see if the device is listed within Computer Setup. If it is listed, the probable cause is a driver problem. If it is not listed, the probable cause is a hardware problem.</li> <li>3 If this is a newly installed drive, enter Setup and try adding a POST delay under Advanced&gt;Power-On.</li> </ol>
	Drive jumper settings might be incorrect.	If the drive is a secondary drive that has just been installed on the same cable as the primary drive, verify that the jumpers for both drives are set correctly.
	Drive's IDE (ATA) controller is disabled in Computer Setup.	Run Computer Setup and enable the Primary and Secondary IDE (ATA) controllers in Storage>Storage Options.
	Drive responds slowly immediately after power-up.	Run Computer Setup and increase the POST Delay in Advanced>Power-On Options.
Nonsystem disk/NTLDR missing message.	System is trying to start from a non-bootable diskette.	Remove the diskette from the diskette drive.
Nonsystem disk/NTLDR missing message.	System is trying to start from a damaged hard drive.	<ol style="list-style-type: none"> <li>1 Insert a bootable diskette into the diskette drive and restart the workstation.</li> <li>2 If the hard drive is still inaccessible and MBR Security is enabled, try restoring the previously saved MBR image by entering Setup and selecting Security&gt;Restore Master Boot Record.</li> </ol>
	System files missing or not properly installed.	<ol style="list-style-type: none"> <li>1 Insert a bootable system diskette and restart.</li> <li>2 Verify hard drive is partitioned and formatted.</li> <li>3 Install system files for the appropriate operating system if necessary.</li> </ol>
	Hard drive boot disabled in Computer Setup.	Run Computer Setup and enable the hard drive entry in the Storage>Boot Order list.
Second Ultra ATA hard drive does not perform optimally.	Using the wrong cable for the drive type.	Reinstall the second Ultra ATA hard drive using an 80-conductor cable (standard on select models.)
	Both slow and fast UATA devices are on the same data cable.	Connect slower UATA devices to a separate data cable connected to the secondary IDE (ATA) controller.
Workstation will not start.	Hard drive is damaged.	Observe the beeps and LED lights on the front of the workstation. Refer to <a href="#">"Power On Self Test (POST) and Error Messages"</a> on page 133.

# Solving Display Problems

**Table 5-7** Display Problems

Problem	Cause	Solution
Blank screen (no video).	The cable connections are not correct.	Check the cable connections from the monitor to the workstation and to a working electrical outlet.
	The monitor is turned off.	Switch the monitor to on (LED is on). You might need to refer to the monitor manual for an explanation of the LED signals.
	Screen blanking utility installed or energy saver features enabled.	Press any key or click the mouse button and, if set, enter your password.
	System ROM is bad; system is running in FailSafe Boot Block mode (indicated by eight beeps).	Reflash the ROM using a ROMPaq diskette.
	Fixed-sync monitor will not sync at the resolution chosen.	Be sure that the monitor can accept the same horizontal scan rate as the resolution chosen.
	Computer is in Hibernate mode.	Press the power button to resume from Hibernate mode.
	Monitor settings in the workstation are not compatible with the monitor.	<b>1</b> Restart the workstation and press <b>F8</b> during startup when you see "Press F8" in the bottom-right corner of the screen.
		<b>2</b> Using the keyboard arrow keys, select Enable VGA Mode and press <b>Enter</b> .
		<b>3</b> In Windows Control Panel, double-click the Display icon and select the Settings tab.
		<b>4</b> Use the sliding control to reset the resolution.
The display works properly during the POST but goes blank when the OS starts.	The display settings in the OS are incompatible with your graphics card and monitor.	<b>1</b> Restart your workstation in VGA mode.
		<b>2</b> After the OS starts, change the display settings to match those supported by your graphics card and monitor.
		<b>3</b> Refer to your OS and graphics card documentation for information on changing display settings.
Power LED flashes Red six times, once every second, followed by a two second pause, and the workstation beeps six times.	Pre-video graphics error.	For systems with a graphics card:
		<b>1</b> Reseat the graphics card.
		<b>2</b> Replace the graphics card.
	Monitor without energy saver capabilities is being used with energy saver features enabled.	<b>3</b> Replace the system board.
		Disable monitor energy saver feature.
Dim characters.	The brightness and contrast controls are not set properly.	Adjust the monitor brightness and contrast controls.
	Cables are not properly connected.	Check that the graphics cable is securely connected to the graphics card and the monitor.

**Table 5-7** Display Problems (Continued)

Problem	Cause	Solution
Blurry video or requested resolution cannot be set.	If the graphics controller was upgraded, the correct video drivers might not be loaded.	Install the video drivers included in the upgrade kit.
	Monitor is not capable of displaying requested resolution.	Change requested resolution.
The picture is broken up, rolls, jitters, or flashes.	The monitor connections might be incomplete or the monitor might be incorrectly adjusted.	<ol style="list-style-type: none"> <li>1 Be sure the monitor cable is securely connected to the workstation.</li> <li>2 In a two-monitor system or if another monitor is in close proximity, be sure the monitors are not interfering with each other's electromagnetic field by moving them apart.</li> <li>3 Fluorescent lights or fans might be too close to the monitor.</li> </ol>
	Monitor needs to be degaussed.	Degauss the monitor.
Vibrating or rattling noise coming from inside a CRT monitor when powered on.	Monitor degaussing coil has been activated.	None. It is normal for the degaussing coil to be activated when the monitor is powered on.
Clicking noise coming from inside a CRT monitor.	Electronic relays have been activated inside the monitor.	None. It is normal for some monitors to make a clicking noise when turned on and off, when going in and out of Standby mode, and when changing resolutions.
High pitched noise coming from inside a flat panel monitor.	Brightness and contrast settings are too high.	Lower brightness and contrast settings.
Fuzzy focus; streaking, ghosting, or shadowing effects; horizontal scrolling lines; faint vertical bars; or unable to center the picture on the screen. (Flat panel monitors using an analog VGA input connection only.)	Flat panel monitor's internal digital conversion circuits might be unable to correctly interpret the output synchronization of the graphics card.	<ol style="list-style-type: none"> <li>1 Select the monitor's Auto-Adjustment option in the monitor's on-screen display menu.</li> <li>2 Manually synchronize the Clock and Clock Phase on-screen display functions. Download SoftPaq SP20930 or SP22333, depending on the monitor, to assist with the synchronization.</li> </ol>
Certain typed symbols do not appear correct.	The font you are using does not support that particular symbol.	Use the Character Map to locate the and select the appropriate symbol. Click Start>All Programs>Accessories>System Tools>Character Map. You can copy the symbol from the Character Map into a document.

## Solving Audio Problems

**Table 5-8** Audio Problems

Problem	Cause	Solution
Sound does not come out of the speaker or headphones.	Software volume control is turned down.	Double-click the Speaker icon on the taskbar and use the volume slider to adjust the volume.
	The external speakers are not turned on.	Turn on the external speakers.

**Table 5-8** Audio Problems (Continued)

Problem	Cause	Solution
	External speakers plugged into the wrong audio jack.	See the sound card documentation for proper speaker connection.
	Audio cable not connected.	Connect audio cable between CD or DVD-ROM drive and the system board.
	Digital CD audio is not enabled.	<p>Enable digital CD audio:</p> <ol style="list-style-type: none"> <li>1 From the Control Panel, select System.</li> <li>2 On the Hardware tab, click the Device Manager button.</li> <li>3 Right-click the CD/DVD device and select Properties.</li> <li>4 On the Properties tab, be sure "Enable digital CD audio for this CD-ROM device" is checked.</li> </ol>
	Headphones or devices connected to the line-out connector mute the internal speaker.	Turn on and use headphones or external speakers, if connected, or disconnect headphones or external speakers.
	Volume is muted.	<ol style="list-style-type: none"> <li>1 From the Control Panel program, click Sound, Speech and Audio Devices, then click Sounds and Audio Devices.</li> <li>2 Click the Mute checkbox to remove the check mark from the box.</li> </ol>
	Computer is in Hibernate mode.	Press the power button to resume from Hibernate mode.
Noise or no sound comes out of the speakers or headphones.		<ol style="list-style-type: none"> <li>1 If using digital speakers that have a stereo jack and want the system to auto-switch to digital, use a stereo-to-mono adapter to properly engage the auto-sense feature or use the multimedia device properties to manually switch the audio signal from analog to digital.</li> <li>2 If the headphones have a mono jack, use the multimedia device properties to switch the system to analog out.</li> </ol>
<p><b>NOTE</b> If you set digital as the Output Mode, the internal speaker and external analog speakers will no longer output audio until you switch back to an auto-sense or analog mode.</p> <p>If you set analog as the Output Mode, external digital speakers will not function until you change the output mode back to an auto-sense or digital mode.</p>		
Sound cuts in and out.	Processor resources are being used by other open applications.	Shut down all open processor-intensive applications.
Workstation appears to be locked up while recording audio.	The hard disk might be full.	<ol style="list-style-type: none"> <li>1 Before recording, be sure there is enough free space on the hard disk.</li> <li>2 Try recording the audio file in a compressed format.</li> </ol>

## Solving Printer Problems

**Table 5-9** Printer Problems

Problem	Cause	Solution
Printer does not print.	Printer is not turned on and online.	Turn the printer on and be sure it is online.
	The correct printer driver for the application are not installed.	<ol style="list-style-type: none"> <li>1 Install the correct printer driver for the application.</li> <li>2 Try printing using the MS-DOS command:   <code>DIR C:\ &gt; [printer port]</code>            where <b>[printer port]</b> is the address of the printer being used. If the printer works, reload the printer driver.</li> </ol>
	If you are on a network, you might not have made the connection to the printer.	Make the proper network connections to the printer.
	Printer might have failed.	Run printer self-test.
Printer does not turn on.	The cables might not be connected properly.	Reconnect all cables.
Printer prints garbled information.	The correct printer driver is not installed.	Install the correct printer driver for the application.
	The cables might not be connected properly.	Reconnect all cables.
	Printer memory might be overloaded.	Reset the printer by turning it off for one minute, then turn it back on.
Printer is offline.	The printer might be out of paper.	<ol style="list-style-type: none"> <li>1 Check the paper tray and refill it if it is empty.</li> <li>2 Select online.</li> </ol>

## Solving Keyboard and Mouse Problems

**Table 5-10** Keyboard and Mouse Problems

Problem	Cause	Solution
Keyboard commands and typing are not recognized by the workstation.	Keyboard connector is not properly connected.	<ol style="list-style-type: none"> <li>1 Turn off the workstation.</li> <li>2 Reconnect the keyboard to the back of the workstation and restart the workstation.</li> </ol>
	Program in use has stopped responding to commands.	Shut down the workstation using the mouse and then restart the workstation.
	Keyboard needs repairs.	Replace the keyboard.
	Keyboard key is stuck down.	Remove any debris from the keyboard.
	Workstation is in Hibernate mode.	Press the power button to resume from Hibernate mode.

**Table 5-10** Keyboard and Mouse Problems

Problem	Cause	Solution
Cursor will not move using the arrow keys on the keypad.	The <b>Num Lock</b> key might be on.	Press the <b>Num Lock</b> key. The <b>Num Lock</b> light should not be on if you want to use the arrow keys. The <b>Num Lock</b> key can be disabled (or enabled) in Computer Setup.
Mouse does not respond to movement or is too slow.	Mouse connector is not properly plugged into the back of the workstation.	<ol style="list-style-type: none"> <li>1 Shut down the workstation using the keyboard.</li> <li>2 Plug the mouse connector into the PS/2 mouse connector slot in the workstation and restart the workstation.</li> </ol>
	Program in use has stopped responding to commands.	Shut down the workstation using the keyboard and then restart the workstation.
	Mouse needs repairs.	Replace the mouse.
	Workstation is in Hibernate mode.	Press the power button to resume from Hibernate mode.
Mouse will only move vertically or horizontally, or movement is jerky.	Mouse roller ball is dirty.	Remove roller ball cover from the bottom of the mouse and clean it.

## Solving Front Panel Component Problems

If you are experiencing problems with one of the front panel ports, you might be able to try your device in the corresponding port on the back side of the computer. If this does not fix the problem, or you must use the front panel ports, continue troubleshooting.

Some problems in this section are also discussed in other troubleshooting suggestions in this chapter.

**Table 5-11** Front Panel Component Problems

Problem	Cause	Solution
If a USB device, headphone, or microphone is not recognized by the workstation.	It is not properly connected.	<ol style="list-style-type: none"> <li>1 Turn off the workstation.</li> <li>2 Reconnect the device to the front of the workstation and restart the workstation.</li> </ol>
	The device does not have power.	If the USB device requires AC power, be sure one end is connected to the device and one end is connected to a live outlet.
	The correct device driver is not installed.	<ol style="list-style-type: none"> <li>1 Install the correct driver for the device.</li> <li>2 You might need to reboot the workstation.</li> </ol>
	The cable from the device to the computer does not work.	<ol style="list-style-type: none"> <li>1 If possible, replace the cable.</li> <li>2 Restart the workstation.</li> </ol>
	The device is not working.	<ol style="list-style-type: none"> <li>1 Replace the device.</li> <li>2 Restart the workstation.</li> </ol>
If a USB, audio, and IEEE-1394 devices are not working.	The internal cables might not be connected to the system board or the PCI card.	<ol style="list-style-type: none"> <li>1 Turn off the workstation.</li> <li>2 Connect the cables correctly.</li> </ol>

**Table 5-11** Front Panel Component Problems (Continued)

Problem	Cause	Solution
A device in the IEEE-1394 port is not responsive.	Cables of new external device are loose or power cables are unplugged.	Be sure that all cables are properly and securely connected.
	The power switch on the device is not turned on.	Turn off the workstation, turn on the external device, then turn on the workstation to integrate the device with the workstation system.
The IEEE-1394 port is not active.	The port is not there because it was not purchased with the system.	You can buy an IEEE1394 PCI adapter card. Contact an HP seller.

## Solving Hardware Installation Problems

You might need to reconfigure the workstation when you add or remove hardware, such as an additional diskette drive. If you install a PnP device, Windows 2000 and Windows XP automatically recognize the device and configure the workstation. If you install a non-PnP device, you must reconfigure the workstation after completing installation of the new hardware. In Windows 2000, select the Add New Hardware icon in the Control Panel (for Windows XP, use the Add Hardware Wizard) and follow the on-screen instructions.

**Table 5-12** Hardware Installation Problems

Problem	Cause	Solution
A new device is not recognized as part of the system.	Device is not seated or connected properly.	Be sure that the device is properly and securely connected and that pins in the connector are not bent down.
	Cables of new external device are loose or power cables are unplugged.	Be sure that all cables are properly and securely connected and that pins in the cable or connector are not bent down.
	Power switch of new external device is not turned on.	Turn off the workstation, turn on the external device, then turn on the workstation to integrate the device with the workstation system.
	When the system advised you of changes to the configuration, you did not accept them.	Reboot the workstation and follow the instructions for accepting the changes.
	A PnP board might not automatically configure when added if the default configuration conflicts with other devices.	Use Windows 2000 or Windows XP Device Manager to deselect the automatic settings for the board and choose a basic configuration that does not cause a resource conflict. You can also use Computer Setup to reconfigure or disable devices to resolve the resource conflict.
Workstation will not start.	Device hardware is not properly jumpered or otherwise configured.	Read the device-specific configuration information and check for incorrect settings or conflicts with other devices already installed in the system.
	Wrong memory modules were used in the upgrade or memory modules were installed in the wrong location.	<ol style="list-style-type: none"> <li>1 Review the documentation that came with the system to determine if you are using the correct memory modules and to verify the proper installation.</li> <li>2 Observe the beeps and LED lights on the front of the workstation. Refer to <a href="#">“Power On Self Test (POST) and Error Messages” on page 133</a> to determine possible causes.</li> </ol>
	PCI Express power cable might be plugged into the wrong connector on the system board.	Connect the auxiliary PCI Express power cable to the PCI Express card.
Power LED flashes Red five times, once every second, followed by a two second pause, and the workstation beeps five times.	Memory is installed incorrectly or is bad.	<ol style="list-style-type: none"> <li>1 Reseat DIMMs.</li> <li>2 Replace DIMMs one at a time to isolate the faulty module.</li> <li>3 Replace third-party memory with HP memory.</li> <li>4 Replace the system board.</li> </ol>



**Table 5-12** Hardware Installation Problems (Continued)

Problem	Cause	Solution
Power LED flashes Red six times, once every second, followed by a two second pause, and the workstation beeps six times.	Video card is not seated properly or is bad, or system board is bad.	For systems with a graphics card: <ol style="list-style-type: none"> <li>1 Reseat the graphics card. Power on the system.</li> <li>2 Replace the graphics card.</li> <li>3 Replace the system board.</li> </ol>

## Solving Network Problems

These guidelines do not discuss the process of debugging the network cabling.

**Table 5-13** Network Problems

Problem	Cause	Solution
Wake-on-LAN feature is not functioning.	Wake-on-LAN is not enabled.	Use the Network control application to enable Wake-on-LAN.
Network driver does not detect network controller.  Network status link light does not turn on or it never flashes. The network status light should flash when there is network activity.	Network controller is disabled.	Run Computer Setup and enable network controller.
	Incorrect network driver.	Check the network controller documentation for the correct driver or obtain the latest driver from the manufacturer's website.
	No active network is detected.	Check cabling and network equipment for proper connection.
	Network controller is not set up properly.	Use the Network control application to verify that the device is working properly.
Diagnostics reports a failure.	Network driver is not properly loaded.	Reinstall network drivers.
	System cannot autosense the network.	Disable auto-sensing capabilities and force the system into the correct operating mode.
	The cable is not securely connected.	Be sure that both ends of the data cable are securely connected.
	The cable is attached to the incorrect connector.	Be sure that the cable is attached to the correct connector.
	There is a problem with the cable or a device at the other end of the cable.	Be sure that the cable and device at the other end are operating correctly.
	Network controller interrupt is shared with an expansion board.	Under the Computer Setup Advanced menu, change the resource settings for the board.
	The network controller is defective.	Replace the NIC.

**Table 5-13** Network Problems (Continued)

Problem	Cause	Solution
Diagnostics passes, but the workstation does not communicate with the network.	Network drivers are not loaded, or driver parameters do not match current configuration.	<b>1</b> Be sure the network drivers are loaded and that the driver parameters match the configuration of the network controller.
		<b>2</b> Be sure the correct network client and protocol is installed.
	The network controller is not configured for this workstation.	Select the Network icon in the Control Panel and configure the network controller.
Network controller stopped working when an expansion board was added to the workstation.	Network controller interrupt is shared with an expansion board.	Under the Computer Setup Advanced menu, change the resource settings for the board.
	The network controller requires drivers.	Verify that the drivers were not accidentally deleted when the drivers for a new expansion board were installed.
	The expansion board installed is a network card (NIC) and conflicts with the embedded NIC.	Under the Computer Setup Advanced menu, change the resource settings for the board.
Network controller stops working without apparent cause.	The files containing the network drivers are corrupted.	Reinstall the network drivers, using the <i>Restore Plus!</i> CD.
	The cable is not securely connected.	Be sure that both ends of the cable are securely attached to the correct devices.
	The network controller is defective.	Replace the NIC.
New network card will not boot.	New network card might be defective or might not meet industry-standard specifications.	Install a working, industry-standard NIC, or change the boot sequence to boot from another source.
Cannot connect to network server when attempting Remote System Installation.	The network controller is not configured properly.	Verify Network Connectivity, that a DHCP Server is present, and that the Remote System Installation Server contains the NIC drivers for your NIC.
System setup utility reports unprogrammed EEPROM.	Unprogrammed EEPROM.	Flash the ROM.

## Solving Memory Problems



**CAUTION** For those systems that support ECC memory, HP does not support mixing ECC and non-ECC memory. Otherwise, the system will not boot the operating system.

**Table 5-14** Memory Problems

Problem	Cause	Solution
System will not boot or does not function properly after installing additional memory modules.	Memory module is not the correct type or speed or the new memory module is not seated properly.	Replace module with the correct industry-standard device for the workstation.
		On some models, ECC and non-ECC memory modules cannot be mixed.
Out of memory error.	Memory configuration might not be set up correctly.	Use the Device Manager to check memory configuration.
	You have run out of memory to run the application.	Check the application documentation to determine the memory requirements.
Memory count during POST is wrong.	The memory modules might not be installed correctly.	Check that the memory modules have been installed correctly and that proper modules are used.
Insufficient memory error during operation.	Too many Terminate and Stay Resident programs (TSRs) are installed.	Delete any TSRs that you do not need.
	You have run out of memory for the application.	Check the memory requirements for the application or add more memory to the workstation.
Power LED flashes Red five times, once every second, followed by a two-second pause, and the workstation beeps five times.	Memory is installed incorrectly or is bad.	1 Reseat DIMMs.
		2 Replace DIMMs one at a time to isolate the faulty module.
		3 Replace third-party memory with HP memory.
		4 Replace the system board.

## Solving Processor Problems

**Table 5-15** Processor Problems

Problem	Cause	Solution
Poor performance is experienced.	Processor is hot.	1 Be sure the airflow to the workstation is not blocked.
		2 Be sure the fans are connected and working properly (some fans only operate when needed).
		3 Be sure the CPU heatsink is installed properly.
Power LED is Red and stays on.	Processor is not seated properly or not installed.	1 Check to see that the processor is present.
		2 Reseat the processor.

# Solving CD-ROM and DVD Problems

**Table 5-16** CD-ROM and DVD Problems

Problem	Cause	Solution
System will not boot from CD-ROM or DVD drive.	The CD-ROM or DVD boot is not enabled through the Computer Setup utility.	Run the Computer Setup utility and enable booting to removable media and verify boot order settings.
	Non-bootable CD in drive.	Try a bootable CD in the drive.
CD-ROM or DVD devices are not detected or driver is not loaded.	Drive is not connected properly or not properly configured.	<b>1</b> Reconnect power and data cables to the drive.
		<b>2</b> Install correct device driver.
Movie will not play in the DVD drive.	Movie might be regionalized for a different country.	See the documentation that came with the DVD drive.
	Decoder software is not installed.	Install decoder software.
Cannot eject compact disc (tray-load unit).	Disc not properly seated in the drive.	<b>1</b> Turn off the workstation and insert a thin metal rod into the emergency eject hole and push firmly.
		<b>2</b> Slowly pull the tray out from the drive until the tray is fully extended, then remove the disc.
CD-ROM, CD-RW, DVD-ROM, or DVD-R/RW drive cannot read a disc or takes too long to start.	CD has been inserted upside down.	Re-insert the CD with the label facing up.
	The DVD-ROM drive takes longer to start because it has to determine the type of media played, such as audio or video.	Wait at least 30 seconds to let the DVD-ROM drive determine the type of media being played. If the disc still does not start, read the other solutions listed for this topic.
	CD or DVD disc is dirty.	Clean CD or DVD with a CD cleaning kit.
	Windows does not detect the CD-ROM or DVD-ROM drive.	<b>1</b> Use Device Manager to remove or uninstall the device in question.
		<b>1</b> Restart the workstation and let Windows detect the device.
Recording audio CDs is difficult or impossible.	Wrong or poor quality media type.	<b>1</b> Try using a slower recording speed.
		<b>2</b> Verify that you are using the correct media for the drive.
		<b>3</b> Try a different brand of media. Quality varies widely between manufacturers.

# Solving Internet Access Problems

**Table 5-17** Internet Access Problems

Problem	Cause	Solution
Unable to connect to the Internet.	Internet Service Provider (ISP) account is not set up properly.	Verify Internet settings or contact the ISP for assistance.
	Modem is not set up properly.	Reconnect the modem. Verify the connections are correct using the quick setup documentation.
	Web browser is not set up properly.	Verify that the Web browser is installed and set up to work with your ISP.
	Cable/ DSL modem is not plugged in.	Plug in cable/DSL modem. You should see a “power” LED light on the front of the cable/DSL modem.
	Cable/DSL service is not available or has been interrupted due to bad weather.	Try connecting to the Internet at a later time or contact your ISP. (If the cable/DSL service is connected, the “cable” LED light on the front of the cable/DSL modem will be on.)
	The CAT5 10/100 cable is disconnected.	Connect the CAT5 10/100 cable between the cable modem and the workstations’s RJ-45 connector. (If the connection is good, the “PC” LED light on the front of the cable/DSL modem will be on.)
	IP address is not configured properly.	Contact the ISP for the correct IP address.
	Cookies are corrupted.	Windows 2000
		<ol style="list-style-type: none"> <li>1 Select <b>Start&gt;Settings&gt;Control Panel</b>.</li> <li>2 Double-click <b>Internet Options</b>.</li> <li>3 On the General tab, click the <b>Delete Cookies</b> button.</li> </ol>
		Windows XP
		<ol style="list-style-type: none"> <li>1 Select <b>Start&gt;Control Panel</b>.</li> <li>2 Double-click <b>Internet Options</b>.</li> <li>3 On the General tab, click the <b>Delete Cookies</b> button.</li> </ol>
Cannot automatically launch Internet programs.	You must log on to the ISP before some programs will start.	Log on to the ISP and launch the desired program.

**Table 5-17** Internet Access Problems (Continued)

Problem	Cause	Solution
Internet takes too long to download websites.	Modem is not set up properly.	<p>Verify that the correct modem speed and COM port are selected.</p> <p>For Windows 2000</p> <ol style="list-style-type: none"><li>1 Select <b>Start&gt;Settings&gt;Control Panel</b>.</li><li>2 Continue with step #2.</li></ol> <p>For Windows XP</p> <ol style="list-style-type: none"><li>1 Select <b>Start&gt;Control Panel</b>.</li></ol> <p>Continue with step #2.</p> <ol style="list-style-type: none"><li>2 Double-click <b>System</b>.</li><li>3 Click the <b>Hardware</b> tab.</li><li>4 In the Device Manager area, click the <b>Device Manager</b> button.</li><li>5 Double-click <b>Ports (COM &amp; LPT)</b>.</li><li>6 Right-click the <b>COM port your modem uses</b>, then click <b>Properties</b>.</li><li>7 Under Device status, verify that the modem is working properly.</li><li>8 Under Device usage, verify the modem is enabled.</li><li>9 If there are further problems, click the Troubleshoot button and follow the on-screen instructions.</li></ol>

# Power On Self Test (POST) and Error Messages

POST is a series of diagnostic tests that runs automatically when the system is turned on. An audible and/or visual message occurs if the POST encounters a problem. POST checks the following items to ensure that the workstation system is functioning properly:

- Keyboard
- Memory modules
- Diskette drives
- All SATA, IDE, and SCSI mass storage devices
- Processors
- Controllers



**NOTE** If the Power-On Password is set, a key icon appears on the screen while POST is running. You must enter the password before continuing.

**Table 5-18** POST Error Messages

Screen Message	Probable Cause	Recommended Action
101—Option ROM Error	System ROM checksum.	<p>Verify the correct ROM.</p> <ol style="list-style-type: none"> <li>Flash the ROM if needed.</li> <li>If an expansion card was recently added, remove it and see if the problem remains.</li> <li>Clear CMOS.</li> <li>If the message disappears, there might be a problem with the expansion card.</li> <li>Replace the system board.</li> </ol>
102—System Board Failure	DMA, timers, etc.	<ol style="list-style-type: none"> <li>Clear CMOS.</li> <li>Remove expansion boards.</li> <li>Replace the system board.</li> </ol>
103—System Board Failure	DMA, timers, etc.	<ol style="list-style-type: none"> <li>Clear CMOS.</li> <li>Remove expansion boards.</li> <li>Replace the system board.</li> </ol>
110—Out of Memory for Option ROMs	Option ROM for a device was unable to run due to memory constraints.	Run Computer Setup and enable the ACPO/USB Buffers at Top of Memory under the Advanced>Power-On option.
150—SafePost Active	A PCI expansion card is not responding.	<ol style="list-style-type: none"> <li>Restart the workstation.</li> <li>Disable SafePost.</li> <li>If the expansion card does not respond, replace the card.</li> </ol>

**Table 5-18** POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
162—System Options Not Set	Configuration incorrect. RTC battery might need to be replaced.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Set the date and time under Control Panel or in F10 Setup depending on the operating system.</li> <li>3 If the problem persists, replace the RTC battery.</li> </ol>
163—Time and Date Not Set	Invalid time or date in configuration memory. RTC (real-time clock) battery might need to be replaced. CMOS jumper might not be properly installed.	<ol style="list-style-type: none"> <li>1 Set the date and time under Control Panel or in F10 Setup depending on the operating system.</li> <li>2 If the problem persists, replace the RTC battery.</li> </ol>
164—Memory Size Error	Memory configuration is incorrect.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup) or Windows utilities.</li> <li>2 Be sure memory module(s) (if any) are installed properly.</li> <li>3 If third-party memory has been added, test using HP-only memory.</li> <li>4 Verify proper memory module type.</li> </ol>
183—Invalid Processor Jumper Setting	System board jumper improperly set.	Reset system board jumpers to match processor and bus speeds (select models).
201—Memory Error	RAM failure.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup) or Windows utilities.</li> <li>2 Be sure that memory and continuity modules are installed correctly.</li> <li>3 Verify proper memory module type.</li> <li>4 Remove and replace memory module(s) one at a time to isolate faulty module.</li> <li>5 Replace the faulty memory module(s).</li> <li>6 If error persists after replacing memory modules, replace the system board.</li> </ol>
202—Memory Type Mismatch	Memory modules do not match each other.	Replace memory modules with matched sets.
207—ECC Corrected Single Bit Errors in Memory Socket(s) y,y	Single Bit ECC error.	<ol style="list-style-type: none"> <li>1 Verify proper memory module type.</li> <li>2 Try another memory socket.</li> <li>3 Replace memory module if problem persists.</li> </ol>
212—Failed Processor	Processor has failed to initialize.	<ol style="list-style-type: none"> <li>1 Reseat the processor in its socket.</li> <li>2 If the processor does not respond, replace it.</li> </ol>
213—Incompatible memory Module in memory Socket(s) X,X, X	A memory module in memory socket identified in the error message is missing critical SPD information, or is incompatible with the chipset.	<ol style="list-style-type: none"> <li>1 Verify proper memory module type.</li> <li>2 Try another memory socket.</li> <li>3 Replace memory with a module conforming to the SPD standard.</li> </ol>



**Table 5-18** POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
214—DIMM Configuration Warning	DIMMs not installed correctly (not paired correctly).	Refer to “ <a href="#">Memory</a> ” on page 76 for the correct memory configurations and reseal the DIMMs accordingly.
215—Memory Mismatch Warning	There are one or more mismatched pairs of DIMMs between channel A and channel B. Some memory has been disabled. Install matching pairs or remove the mismatched DIMMs from channel B.	Refer to “ <a href="#">Memory</a> ” on page 76 for the correct memory configurations and reseal the DIMMs accordingly.
216—Memory Size Exceeds Maximum Supported	The amount of memory installed exceeds that supported by the hardware.	<ol style="list-style-type: none"> <li>1 Verify how much memory your system can support.</li> <li>2 Remove the excessive memory.</li> </ol>
219—ECC Memory Module Detected.	ECC modules not supported on this platform.	Remove the EDD module.
301—Keyboard Error	Keyboard failure.	<ol style="list-style-type: none"> <li>1 Reconnect keyboard with workstation turned off.</li> <li>2 Check connector for bent or missing pins.</li> <li>3 Be sure that none of the keys are pressed.</li> <li>4 Replace keyboard.</li> </ol>
303—Keyboard Controller Error	I/O board keyboard controller.	<ol style="list-style-type: none"> <li>1 Reconnect keyboard with workstation turned off.</li> <li>2 Replace the system board.</li> </ol>
304—Keyboard or System Unit Error	Keyboard failure.	<ol style="list-style-type: none"> <li>1 Reconnect the keyboard with workstation turned off.</li> <li>2 Be sure that none of the keys are pressed.</li> <li>3 Replace keyboard.</li> <li>4 Replace system board.</li> </ol>
401—Parallel Port 1 Address Assignment Conflict	IRQ address conflicts with another device.	Reset the IRQ.
402—Parallel Port 2 Address Assignment Conflict	IRQ address conflicts with another device.	Reset the IRQ.
403—Parallel Port 3 Address Assignment Conflict	IRQ address conflicts with another device.	Reset the IRQ.
404—Parallel Port Address Conflict Detected	Both external and internal ports are assigned to parallel port X.	<ol style="list-style-type: none"> <li>1 Remove any parallel expansion cards.</li> <li>2 Clear CMOS.</li> <li>3 Reconfigure card resources and run Computer Setup (F10 Setup).</li> </ol>
410—Audio Interrupt Conflict	IRQ address conflicts with another device.	Reset the IRQ.
411—Network Interface Card Interrupt Conflict	IRQ address conflicts with another device.	Reset the IRQ.

**Table 5-18** POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
501—Display Adapter Failure	Graphics display controller.	<ol style="list-style-type: none"> <li>1 Reseat the graphics card (if applicable).</li> <li>2 Clear CMOS.</li> <li>3 Verify that the monitor is attached and turned on.</li> <li>4 Replace the graphics controller.</li> </ol>
510—Splash Screen image corrupted	Splash Screen image has errors.	Install latest version of ROMPac to restore image.
511—CPU, CPUA, or CPUB Fan not detected	Fan is not connected or might have malfunctioned.	<ol style="list-style-type: none"> <li>1 Reseat fan cable.</li> <li>2 Reseat the fan.</li> <li>3 Replace the fan.</li> </ol>
512—Chassis, rear chassis, or front chassis fan not detected	Fan is not connected, might have malfunctioned.	<ol style="list-style-type: none"> <li>1 Reseat chassis, rear chassis, or front chassis fan cable.</li> <li>2 Reseat chassis, rear chassis, or front chassis fan.</li> <li>3 Replace chassis, rear chassis, or front chassis fan.</li> </ol>
514—CPU or Chassis Fan not detected	CPU fan is not connected or might have malfunctioned.	<ol style="list-style-type: none"> <li>1 Reseat CPU or chassis fan.</li> <li>2 Replace CPU or chassis fan.</li> </ol>
601—Diskette Controller Error	Diskette controller circuitry or diskette drive circuitry incorrect.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Check and replace cables.</li> <li>3 Clear CMOS.</li> <li>4 Replace diskette drive.</li> <li>5 Replace the system board.</li> </ol>
605—Diskette Drive Type Error	Mismatch in drive type.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Disconnect any other diskette controller devices (tape drives).</li> <li>3 Clear CMOS.</li> </ol>
610—External Storage Device Failure	External tape drive not connected.	Reinstall tape drive or press <b>F1</b> and allow system to reconfigure without the drive.
611—Primary Diskette Port Address Assignment Conflict	Configuration error.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Remove expansion cards.</li> <li>3 Clear CMOS.</li> </ol>
912—Computer Cover Has Been Removed Since Last System Start Up		No action required.
914—Hood Lock Coil is not Connected	Solenoid access panel lock mechanism is missing or not connected.	<ol style="list-style-type: none"> <li>1 Reconnect or replace hood locking mechanism.</li> <li>2 Reseat or replace hood locking mechanism cable.</li> </ol>
916—Power Button Not Connected	The power button is not connected.	Connect power button.

**Table 5-18** POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
917—Front Audio Not Connected	The front audio cable is not connected.	Connect front audio cable.
918—Front USB Not Connected	Front USB is not connected.	Connect front USB cable.
919—Multi-Bay Riser Not Connected	Multi-Bay riser is not connected.	Connect Multi-Bay riser.
920—Fan Command 2 Pin Connector from Power Supply Not Connected	The 2-pin fan connector from the power supply is not connected.	Connect 2-pin fan connector.
940—Extended ROM signature not found	The signature at the start of the ROM flash is missing. Your firmware (BIOS) is incomplete.	Run ROMPaq again.
960—CPU Overtemp occurred	The ambient temperature could exceed operating limits (maximum=95°F), or there are obstructions to airflow, including dust build up.	<ol style="list-style-type: none"> <li>1 Be sure you are not operating the system in an environment that exceeds 95°F.</li> <li>2 Disconnect power and open the access panel.</li> <li>3 Check that cables are not blocking CPU heatsink fans or front fan, if installed.</li> <li>4 Check that there is not excessive dust on major components.</li> <li>5 If airflow is acceptable and there is not excessive dust, the thermal sensing circuitry has failed on the processors or on the system board. You must replace the processors and/or the system board.</li> </ol>
1151—Serial Port 1 Address Conflict Detected	Both external and internal serial ports are assigned to COM1.	<ol style="list-style-type: none"> <li>1 Remove any Comm port expansion cards.</li> <li>2 Clear CMOS.</li> <li>3 Reconfigure card resources and run Computer Setup (F10 Setup). Run Computer Setup or Windows utilities.</li> </ol>
1152—Serial Port 2 Address Conflict Detected	Both external and internal serial ports are assigned to COM2.	<ol style="list-style-type: none"> <li>1 Remove any Comm port expansion cards.</li> <li>2 Clear CMOS.</li> <li>3 Reconfigure card resources and run Computer Setup (F10 Setup). Run Computer Setup or Windows utilities.</li> </ol>
1155—Serial Port Address Conflict Detected	Both external and internal serial ports are assigned to same IRQ.	<ol style="list-style-type: none"> <li>1 Remove any Comm port expansion cards.</li> <li>2 Clear CMOS.</li> <li>3 Reconfigure card resources and run Computer Setup (F10 Setup). Run Computer Setup or Windows utilities.</li> </ol>
1201—System Audio Address Conflict Detected	Device IRQ address conflicts with another device.	Reset the IRQ.
1202—MIDI Port Address Conflict Detected	Device IRQ address conflicts with another device.	Reset the IRQ.

**Table 5-18** POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
1203—Game Port Address Conflict Detected	Device IRQ address conflicts with another device.	Reset the IRQ
1720 SMART Hard Drive Detect Imminent Failure	Hard drive is about to fail. (Some hard drives have a firmware patch that will fix an erroneous error message.)	<ol style="list-style-type: none"> <li>1 Determine if hard drive is giving correct error message. Run the Drive Protection System test if applicable.</li> <li>2 Apply firmware patch if applicable (see <a href="http://www.hp.com/support">http://www.hp.com/support</a>).</li> <li>3 Back up contents and replace hard drive.</li> </ol>
1721—SMART SCSI Hard Drive detects imminent failure	Hard drive is about to fail. (Some hard drives have a firmware patch that will fix an erroneous error message.)	<ol style="list-style-type: none"> <li>1 Determine if hard drive is giving correct error message. Run the Drive Protection System test if applicable.</li> <li>2 Apply firmware patch if applicable (see <a href="http://www.hp.com/support">http://www.hp.com/support</a>).</li> <li>3 Back up contents and replace hard drive.</li> </ol>
1780—Disk 0 Failure	The drive is not installed correctly or has failed.	<ol style="list-style-type: none"> <li>1 Make sure that any jumpers are set correctly, and that power and drive cables are connected, both to the drive and the system board.</li> <li>2 Verify that the cables are the correct cables for your computer model.</li> </ol> <p>If this message persists, you may need service for your workstation.</p>
1781—Disk 1 Failure	The drive is not installed correctly or has failed.	<ol style="list-style-type: none"> <li>1 Make sure that any jumpers are set correctly, and that power and drive cables are connected, both to the drive and the system board.</li> <li>2 Verify that the cables are the correct cables for your computer model.</li> </ol> <p>If this message persists, you may need service for your workstation.</p>
1782—Disk Controller Failure	Hard drive circuitry error.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Clear CMOS.</li> <li>3 Check cable seating/jumper settings.</li> <li>4 Run hard drive diagnostics.</li> <li>5 Disconnect additional drives.</li> <li>6 Run the Drive Protection System test if available.</li> <li>7 Check <a href="http://www.hp.com/support/techpubs/customer_advisories">http://www.hp.com/support/techpubs/customer_advisories</a> for possible changes when using Windows NT 4.0 Service Pack 4.</li> <li>8 Replace the hard drive.</li> <li>9 Replace the system board.</li> </ol>
1785—Multibay incorrectly installed	No other IDE device may be attached to the same IDE controller.	Attach the Multibay as device 0 on the secondary IDE controller.

**Table 5-18** POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
1790—Disk 0 Error	The drive is not installed correctly or has failed.	<ol style="list-style-type: none"> <li>1 Make sure that any jumpers are set correctly, and that power and drive cables are connected, both to the drive and the system board.</li> <li>2 Verify that the cables are the correct cables for your computer model.</li> </ol> <p>If this message persists, you may need service for your workstation.</p>
1791—Disk 1 Error	The drive is not installed correctly or has failed.	<ol style="list-style-type: none"> <li>1 Make sure that any jumpers are set correctly, and that power and drive cables are connected, both to the drive and the system board.</li> <li>2 Verify that the cables are the correct cables for your computer model.</li> </ol> <p>If this message persists, you may need service for your workstation.</p>
1792—Secondary Disk Controller Failure	Hard drive circuitry error.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Clear CMOS.</li> <li>3 Check cable seating/jumper settings.</li> <li>4 Run hard drive diagnostics.</li> <li>5 Disconnect additional drives.</li> <li>6 Run the Drive Protection System test if available.</li> <li>7 Replace the hard drive.</li> </ol>
1793—Secondary Controller or Disk Failure	Hard drive circuitry error.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Clear CMOS.</li> <li>3 Check cable seating/jumper settings.</li> <li>4 Run hard drive diagnostics.</li> <li>5 Disconnect additional drives.</li> <li>6 Run the Drive Protection System test if available.</li> <li>7 Replace the hard drive.</li> </ol>
1794—Inaccessible devices attached to primary IDE controller	Devices attached to the primary IDE controller are inaccessible while the SATA controller is set to “Replace Primary IDE Controller” in Setup.	<ol style="list-style-type: none"> <li>1 Run Computer Setup (F10 Setup).</li> <li>2 Select Storage &gt; Storage Options and set SATA controller to Add as Separate Controller.</li> </ol>
1800—Temperature Alert	Internal temperature exceeds specification.	<ol style="list-style-type: none"> <li>1 Check that workstation air vents are not blocked and cooling fan is running.</li> <li>2 Verify processor speed selection.</li> <li>3 Replace the processor.</li> <li>4 Replace the system board.</li> </ol>
1801—Microcode Patch Error	Processor not supported by ROM BIOS.	Upgrade BIOS to proper version.

**Table 5-18** POST Error Messages (Continued)

Screen Message	Probable Cause	Recommended Action
1802—Processor Not Supported	The system board does not support the processor.	Replace the processor with a compatible one.
1803-BIOS Update Needed for Processor	This BIOS revision does not support the installed processor.	Install the latest BIOS located at <a href="http://www.hp.com">www.hp.com</a> .
1998—Master Boot Record has been lost	The previously saved copy of the MBR has been corrupted.	Run Computer Setup and save the MBR of the current bootable disk.
1998—Master Boot Record has been changed	The current MBR does not match the previously saved copy of the MBR.	Use extreme caution. The MBR might have been updated due to normal disk maintenance activities (disk manager, fdisk, or format). Replacing the previously saved MBR in such situations can cause data loss. If certain that the MBR change is unintentional and undesired (for example, due to a virus), run Computer Setup and restore the previously saved MBR copy. Otherwise, run Computer Setup and either disable MBR security or save the MBR of the current bootable disk.
Invalid Electronic Serial Number	Electronic serial number has become corrupted.	Run Computer Setup. If Setup already has data in the field or will not allow the serial number to be entered, download from <a href="http://www.hp.com">http://www.hp.com</a> and run SP5572.EXE (SNZERO.EXE). Run Computer Setup and try to enter serial number under Security, System ID, then save changes.
ECC Multiple Bit Error Detected in Memory Module	Chipset has detected more than one bad bit in a 64-bit quadword of the memory array.	Replace the memory module.
Parity Check 2	Parity RAM failure.	Run Computer Setup and Diagnostic utilities.